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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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September 6, 1989

TO: Wayne Hedberg, Permit Lead

FROM: Scott Johnson, Reclamation Engineer Scott

RE: Revision Review, Hecla Mining Company, Apex Mine, M/053/004, Washington County, Utah

I have completed my review of the Apex mine revision. During my field visit on September 1, 1989, Louis Knight indicated that Hecla requests the same soils variance for the proposed quarry that the Division granted to St. George Mining Company for the mine site. As you know, the terrain is very steep around the mine, with an average slope ranging between 30 degrees and 35 degrees. This range falls between the angle of repose of the waste material (37 degrees) and the Division standard of a 2H:1V final slope (26 degrees).

The attached reclamation estimate includes the reclamation costs for the current disturbance and for this revision. I prepared it with the assumption that the Division will not require the operator to reduce highwalls and waste slopes to a 2H:1V configuration. My costs include only the regrading of the material to leave the area stable and non-impounding. These items and the revegetation requirements should be reviewed prior to sending this quote to the operator.

The total reclamation cost, escalated to 1994 dollars, is $44,000. The previous estimate was $54,389. One major difference in the estimates is the amount of lumber, steel, and concrete needed to seal the mine. I think the 1984 estimate is way out of line on this item.

jb
Attachment
cc: Holland Shepherd
MN17/67

Reclamation Estimate for Hecla Mining Company
Apex Unit Washington County M/053/004

Prepared By Utah State Division of Oil, Gas and Mining
September 5, 1989

Description	Quantity	Unit	$/Unit	Cost ($)
Mine Site Reclamation (a)				
Break-Up/Bury Concrete Foundations	2,000	Square Feet	4	8,000
Break-Up/Bury Concrete Retaining Walls	80	Cubic Yards	9	720
Remove Trash	4.0	Acres	100	400
Install Bulkheads Inside Adits		Lump Sum		2,400
Install Cap on Paymaster Shaft		Lump Sum		1,000
Backfill Adits and Shaft		Lump Sum		600
Bury Rock Gabion Retaining Wall		Lump Sum		3,000
Regrade Pads to Prevent Erosion		Lump Sum		5,000
Revegetate (b)	4.0	Acres	447	1,790
Subtotal				22,910
Quarry Site Reclamation				
Regrade to Prevent Erosion (c)	4.2	Acres	800	3,360
Revegetate	4.2	Acres	447	1,880
Subtotal				5,240
Other Reclamation				
Remove Trailers and Regrade Pad		Lump Sum		2,000
Regrade Bone Yard	0.5	Acres	800	400
Rip Roads	6,000	Linear Feet	0.70	4,200
Revegetate	4.0	Acres	447	1,790
Subtotal				8,390
Totals				36,540
Add Contingency (10%)				3,650
TOTAL RECLAMATION COST (1989 Dollars)				40,190
TOTAL RECLAMATION COST (1994 Dollars) @ 1.93% Annual Inflation				44,000

Notes:
(a) The buildings are all constructed of prefabricated steel panels. The salvage value will exceed cost of removal. Utah Power & Light extended the power line to the minesite from the plantsite. UP&L will remove the line when it is no longer needed.
(b) This figure includes the revegetation of the upper mine waste dump, which slopes at the angle of repose.
(c) The quarry will be dug out of a steeply sloping hillside. Final reclamation will consist of slope stabilization and impoundment prevention.

Reclamation Estimate for Hecla Mining Company
Apex Unit Washington County M/053/004

Prepared By Utah State Division of Oil, Gas and Mining
September 5, 1989

Cost Parameters Used

D-8 Dozer (O&O)	160	$/hour
988B Wheel Loader (O&O)	165	$/hour
Labor Only	24	$/hour
Farm Tractor (O&O)	67	$/hour
Speed	4	mph
Width of Pass	6	feet

Revegetation Cost per Acre	Quantity	Unit	$/Unit	Total Cost ($)
Bare Costs				
Fertilizer (18-46-0)	100	Pounds	0.25	25
Seed Mix	20	Pounds	9	180
Native Hay Mulch	2	Tons	50	100
Seed Mix (drilled)	0.5	Hours	24	12
Subtotal				317
Application Costs				
Native Hay Mulch (spread by hand)	3.0	Hours	24	72
Native Hay Mulch (disc into ground)	0.3	Hours	67	23
Fertilizer (broadcast by hand)	0.5	Hours	24	12
Seed Mix (drilled)	0.5	Hours	0	0
Scarify (tractor with chain)	0.3	Hours	67	23
Subtotal				130
Total Revegetation Cost per Acre				447